VECTOR CONTROL PLAN
EAST COUNTY SAND MINE
MAJOR USE PERMIT AND RECLAMATION PLAN
MUP 09-16-123/RP 09-001
ER 09-140-08

Lead Agency

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GLOSSARY OF TERMS AND ACRONYMS

AMSL	Above mean sea level
APN	Assessors Parcel Number
BMP	Best Management Practices
CEQA	California Environmental Quality Act
CY	Cubic Yards
County	County of San Diego
MUP	Major Use Permit
PRC	Public Resources Code
RP	Reclamation Plan
SMARA	Surface Mining and Reclamation Act
SR	State Route

1.1 INTRODUCTION

1.2 Purpose of Report

The purpose of this Vector Management Plan is to identify best management practices that will be implemented on the project site to minimize mosquito breeding sources associated with retention basins, wetlands and ponds that would be created as the result of sand mining extraction activities. The Plan also addresses measures that will be implemented to minimize rodents (rats and mice) within the project site.

1.2 Project Description

The East County Sand Mine project consists of an application for a Major Use Permit (MUP) and a Reclamation Plan (RP). The project site consists of 26.16 acres of relatively flat to gently sloping ground located in the Moreno Valley area of the Lakeside Community. The East County Sand Mine application for a MUP would authorize the extraction (mining) of sand and topsoil (see **Figure 1**). Following the completion of the extraction activities the site would be reclaimed as shown in **Figure 2**.

Sand and topsoil extraction and site reclamation would occur in six phases over a 20-year period. Reclamation of each extraction area would occur immediately following the completion of each extraction phase as shown in **Table 1**. During Phases 1 through 5, the extraction process will create ponds that will be ultimately filled in during the reclamation process. Phase 6 is a three-year monitoring period for evaluation of the success of the reclamation process. A recycling facility will be operated on-site during the sand extraction operation. Used concrete, asphalt and rock will be imported to the site from other construction site locations and crushed to a variety of sizes.

As shown in **Table 1**, each pond may exist for up to five years. The size of the ponds will increase as the extraction process proceeds and they will diminish in size as the reclamation process proceeds. The extraction and reclamation process will be intermittent depending up the market requirements for sand.

Table 1
Proposed Extraction and Reclamation Phases

Project Phase	Estimated Extraction Start Date	Estimated Date of Completion	
		Extraction	Reclamation
1	2012	2018	2023
2	2018	2019	2025
3	2020	20210	2026
4	2021	2024	2027
5	2024	2028	----
6	----	----	2032*

Note:
* Phase 6 includes a three year monitoring period for evaluation of reclamation success.
Source: East County Sand, *East County Sand Mine Reclamation Plan*, September 2, 2011.

Site drainage from the reclaimed areas would be directed to retention basins to avoid the transport of eroded materials into the Slaughterhouse and San Vicente Creek channels. At the

conclusion of the reclamation monitoring process the site would be in a condition suitable for industrial activities as permitted by the Medium Impact Industrial land use designation.

The Reclamation Plan (see **Figure 2**) proposes to construct a portion of Slaughterhouse Creek and San Vicente Creek channels in a configuration that would convey a 100-yr storm flow upon completion of the project. Through an agreement with the owners of the Enniss Sand Mine, the reconfigured Slaughterhouse Creek channel will cross the southeast corner of parcel APN 375-040-14 (a portion of the Enniss Sand Mine property). The San Vicente Creek channel constructed by the proposed project will be a continuation of the San Vicente Creek channel constructed by the Ennis Sand Mine property.

1.3 Environmental Setting (Existing Conditions)

The project site is located in the Moreno Valley, a north-south trending valley below San Vicente Reservoir that opens into the San Diego River valley approximately 3 miles south of the dam (see **Figures 3 & 4**). The elevation of the project site ranges from 435 feet above mean sea level (AMSL) at the southern boundary line to 450 feet AMSL at the northwest corner of the site. Hills to the east of valley rise to 1,200 to 1,500 feet AMSL.

Land uses to the north of the project site along Moreno Avenue and Vigilante Road consist of sand mining, industrial and construction related uses, and a green waste recycling facility. A rock quarry and blasting contracting business are located near the intersection of Vigilante Road and SR 67. Land uses to the west of SR 67 opposite the project site consists of rural residential area along Johnson Lake Road. Areas to the north and south of this residential area contain a few residences on steeply sloping lands. (see **Figures 5 & 6**). The area south of the project site between SR 67 and Moreno Avenue contains a bottled water company, scattered single-family homes, interspersed with various industrial and commercial activities.

Chuck Green & Associates Landscape Construction and Equipment Sales is located on 375-100-24, the office for Bob's Tree Farm and Crane Service is located on APN 375-100-09, and Shaw's Retail Nursery is located on 375-100-24. The adjacent Enniss Sand Mine (P87-075W[1]/RP87-006W[1] is located on parcels APN 375-040-14, -15 and -18.

Vegetation on the project site is comprised of southern coast live oak riparian forest, disturbed southern willow scrub, mulefat scrub, freshwater scrub, emergent wetland, non-native riparian, non-native grassland, non-native vegetation, extensive agriculture, disturbed habitat, and urban/developed areas.[1] Sensitive species observed within the study area included the following: least Bell's vireo (*Vireo bellii pusillus*) (vireo), yellow warbler (*Dendroica petechia brewsteri*), osprey (*Pandion haliaetus*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), great blue heron (*Ardea herodias*), Nuttall's woodpecker (*Picoides nuttallii*), western bluebird (*Sialia mexicana*), and southern mule deer (*Odocoileus hemionus fuliginata*).

2.1 VECTOR MANAGEMENT

2.1 Guidelines for Determining Significance

A project will generally be considered to have a significant effect if it proposes any of the following, absent specific evidence to the contrary.[2] Conversely, if a project does not propose any of the following, it will generally not be considered to have a significant effect related to vectors, absent specific evidence of such an effect:

Standing Water

The project proposes a BMP for stormwater management or construction of a wetland, pond or other wet basin that could create sources of standing water for more than 72 hours, and as a

result, could substantially increase human exposure to vectors, such as mosquitoes, that are capable of transmitting significant public health diseases or creating nuisances.

The sand mining operation will create ponds that will have standing water. The potential vector impacts associated with the project are evaluated in Section 2.2.1 below.

Composting and Manure Management

The project proposes a use that involves the production, use and/or storage of manure or proposes a composting operation or facility and as a result, could substantially increase human exposure to vectors that are capable of transmitting significant public health diseases or creating nuisances.

The sand mining operation as described in Section 1.2 above will not involve the production, use and/or storage of manure. Therefore, the project would not result in a significant impact associated with manure production, use and/or storage.

Project Proposed Near Existing Offsite Vector Sources

The project would result in a substantial increase in the number of residents located within one-quarter mile of a significant offsite vector breeding source; including but not limited to, standing water (e.g. agricultural ponds, reservoirs) and sources of manure generation or management activities (e.g. confined animal facilities, horse keeping operations, composting operations).

The sand mining operation as described in Section 1.2 above will not involve the construction of residential units. Therefore, the project would not result in a significant impact associated with the construction of residential units.

2.2 Management Practices

2.2.1 Vectors

Extraction Ponds

Ponds will be created during each of the project extraction phases as shown in **Figures 7–12**. The water surface of the ponds will be routinely disturbed by the extraction process when sand is lifted from the pit by an excavator and/or dragline dredge. The water surface will also be disturbed during the reclamation process when fill materials are placed in the ponds by dump trucks or crane buckets. The active nature of the extraction and reclamation process will preclude the establishment of sediment accumulation, invasive or exotic vegetation, vegetation overgrowth and vandalism. Trash and debris collection and removal will occur continuously by the sand mine operating personnel.

While each pond is being extracted and filled (reclaimed) the depth and surface area of the pond will vary. **Table 2** lists the maximum surface area of each pond. The ponds will be stocked with Mosquito Fish (*Gambusia affinis)* at a ratio of one fish for every 200 square feet of pond surface area as recommended the County Department of Environmental Health.[3]

Since the extraction ponds will not have plant life, the mosquito fish will be fed fish food flakes twice a day. At each feeding, the fish will be fed as much as they can eat in a five-minute feeding period.[4] To maintain suitable living conditions for the fish, no chlorine, garden insect sprays or yard chemicals will be allowed within the extraction ponds.

Table 2
Maximum Surface Area of Ponds

Pond	Surface Area (Maximum sq.ft)	No. of Mosquito Fish at Maximum Surface Area of Pond[a]
1E-A	101,442	5,072
1E-B	214,664	10,733
2E	92,995	4,650
3E	63,719	3,186
4E	172,582	8,629
5E	257,114	12,856

Notes:
[a] Mosquito fish will be maintained at a ratio of one fish for every 20 square feet of surface area per County of San Diego, Department of Environmental Health, *Mosquito Fish Information Sheet*, downloaded on August 10, 2011 from website http://www.sdcounty.ca.gov/deh/pests/wnv/prevention/chd_wnv_mosquito_fish.html.

Source:
Surface area of ponds provided by Site Design Associates, Inc., September 7, 2011.

Retention Basins

The retention basins along Slaughterhouse Creek (see **Figure 2**) are designed to allow runoff waters to be completely discharged by gravity flow from the basins within 72 hours. The gradient of the basins is designed to follow the hydraulic grade line of the site from north to south across the project site so that runoff will follow the contour of land. The slope of the basins is sufficient to avoid standing water and to prevent the buildup of sediment between maintenance periods. Maintenance access ramps to each retention basin are included as shown on **Figure 2**.

The basins will be maintained monthly by each property owner. Maintenance will include: (1) cutting vegetation within the basins to a height of six inches or less; (2) removing any sediment that may have collected within the basin; (3) removing trash and debris from the basin; and (4) making any necessary repairs to maintain the functionality of the basin.

Wetlands

The existing southern willow scrub wetland along SR 67 and in the southeast corner of the project site (APN 375-100-41 and -42) will be retained. The latter southern willow scrub wetland will be expanded to mitigate for the loss of wetlands in other parts of the project site. A wetland with herbaceous vegetation would also be created in the soft bottom of the reconfigured Slaughterhouse Creek. These wetlands will be would be supported by ephemeral water flows and would not have pools of standing water that could become a potential breeding habitat for mosquitoes.

The *Conceptual Wetland Mitigation Plan*[5] addresses the maintenance and management of the wetlands. The Pest Control Section included in the *Conceptual Wetland Mitigation Plan* address what pests are expected and how they would be prevented and/or controlled. The specific provisions of the Pest Control Section applicable to mosquitoes include:

> "The created and/or enhanced native wetland habitat proposed onsite would consist of southern willow scrub and mule fat scrub. These habitats are supported by ephemeral water flows and typically not considered potential mosquito breeding habitat. Furthermore, the mitigation site is not designed to support standing water/pools that would be considered suitable breeding habitat for mosquitoes. Therefore, mosquitoes are not expected to be a potential pest/vector within the proposed wetland mitigation site. Pest management of native habitats is typically limited to controlling herbivory from native wildlife including rabbits, ground squirrels, and gophers. Pest Management may include installing foliage cages to protect above and/or below ground plant growth until plants have become fully established. No rodenticides or animal trapping is proposed for use in the establishment of the wetlands at this site and none are anticipated to be necessary during the maintenance and/or monitoring 5-year period. If needed, the Restoration Specialist will provide all necessary recommendations regarding pest management."

2.2.2 Rodents

Since the project does not include any existing buildings or the construction of new buildings, Norway Rats (*Rattus Norvegicus*) or Wood Rats (*Neotoma spp.*) are the rodent species most likely to occur on-site. The sand mine operator will implement the following preventive measures to avoid providing food or shelter for rodents include: (1) insuring that garbage and trash cans are tightly covered at all times; (2) removing trash and debris; (3) stack wood or lumber at least 18 inches above the ground and 12 inches away from fences; (4) remove heavy vegetation such as Ivy, bougainvillea and pyrancantha away from fences; and (4) thin vegetation to allow daylight in.

The sand mine operator will periodically inspect the site for evidence of rat activity (e.g., droppings, signs of gnawing, stripped bark from plants and trees, piles of cut snail shells hidden under plants, etc.). If rats are found, outdoor bait stations will be placed where dropping have been found and in protected areas such as under woodpiles and in thick vegetation. The bait stations will be inspected at least twice a week and baited as necessary. Dead rats will be placed in sealed containers and placed in sealed trash containers for disposal.

The *Conceptual Wetland Mitigation Plan*[6] addresses the maintenance and management of the wetlands. The Pest Control Section included in the *Conceptual Wetland Mitigation Plan* address what pests are expected and how they would be prevented and/or controlled. The specific provisions of the Pest Control Section applicable to rodents are included in the above citation.

2.3 Education

2.3.1 Vectors

The operator of the East County Sand Mine will conduct employee training sessions semi-annually. Training will emphasize the need to: (1) remove trash and debris daily from the sand mine operating area; (2) report any area of standing water other than the extraction ponds; and (3) report any act of vandalism occurring on the site.

2.3.2 Rodents

The operator of the East County Sand Mine will conduct employee training sessions semi-annually. Training will emphasize the need to: (1) report any evidence of rat activity on-site; (2) insure that garbage and trash cans are tightly covered at all times; (3) remove trash and debris

daily from the sand mine operating area; and (4) stack wood or lumber at least 18 inches above the ground.

3.0 LONG TERM MAINTENANCE

3.1 Summary

The East County Sand Mine operator will stock the extraction ponds with Mosquito Fish (*Gambusia affinis)* at a ratio of one fish for every 200 square feet of pond surface area and insure that trash and debris are continuously removed from the site. The operator will also insure that the Pest Control Section of the *Conceptual Wetland Mitigation Plan* is implemented.

Each property owner will maintain the retention basins by cutting vegetation within the basins to a height of six inches or less, removing any sediment that may have collected within the basin, removing trash and debris from the basin, and making any necessary repairs to maintain the functionality of the basin.

3.2 Project Specific Conditions

a. The sand mine operator will insure that the extraction ponds are continuously stocked with Mosquito Fish (*Gambusia affinis*) at a ratio consistent with the size of the pond.

b. The sand mine operator will insure that the Pest Control Section of the *Conceptual Wetland Mitigation Plan* is implemented.

c. The sand mine operator will insure that garbage and trash cans are tightly covered at all times, remove trash and debris from the site, stack wood or lumber at least 18 inches above the ground and 12 inches away from fences, remove heavy vegetation within 24 inches of fences, and thin vegetation to allow daylight in.

d. The owners of the sand mine property will continuously maintain the retention basins by cutting vegetation to a height of six inches or less, removing sediment that may collect within the basin, removing trash and debris from the basins, and repairing the basins as needed.

4.0 SUMMARY OF DESIGN CONSIDERATIONS AND MITIGATION MEASURES TO MINIMIZE VECTORS

The following design considerations are incorporated into the MUP.

- The extraction ponds will be stocked with Mosquito fish (Gambusia affinis).
- The retention basins will allow runoff waters to be completely discharge by gravity flow within 72 hours.
- Maintenance access ramps are provided to each retention basin.
- The following *Conceptual Wetland Mitigation Plan* Pest Control Section measures will be implemented:
    - Pest management of native habitats will be limited to controlling herbivory from native wildlife including rabbits, ground squirrels, and gophers. Pest Management may include installing foliage cages to protect above and/or below ground plant growth until plants have become fully established.
    - If needed, the Restoration Specialist will provide all necessary recommendations regarding pest management."

The following mitigation measures will be implemented throughout the term of the MUP.

- Monthly retention basin maintenance includes: (1) cutting vegetation within the basins to a height of six inches or less; (2) removing any sediment that may have collected within the basin; (3) removing trash and debris from the basin; and (4) making any necessary repairs to maintain the functionality of the basin.
- Preventive measures to avoid providing food or shelter for rodents include: (1) insuring that garbage and trash cans are tightly covered at all times; (2) removing trash and debris; (3) stack wood or lumber at least 18 inches above the ground and 12 inches away from fences; (4) remove heavy vegetation such as Ivy, bougainvillea and pyrancantha away from fences; and (4) thin vegetation to allow daylight in.
- If rats are found on-site, outdoor bait stations will be placed where dropping have been found and in protected areas such as under woodpiles and in thick vegetation. The bait stations will be inspected at least twice a week and baited as necessary. Dead rats will be placed in sealed containers and placed in sealed trash containers for disposal.

5.0 REFERENCES

County of San Diego

Vector Control Program Website Information Pages

- *Mosquito Prevention Checklist*, undated.
- *Rats*, undated

Department of Planning and Land Use

- *Guidelines for Determining Significance: Vectors*, January 15, 2009
- *Report Format and Content Requirements: Vectors*, July 30, 2007

Department of Public Works

- *Standard Urban Stormwater Mitigation Plan*, January 8, 2011

Merkel & Associates, Inc.

- *East County Sand Mine Conceptual Wetland Mitigation Plan, September 2011.*

University of California

Division of Agriculture and Natural Resources

- *Managing Mosquitoes in Stormwater Treatment Devices*, Publication 8125, undated
- *Managing Mosquitoes in Surface-Flow Constructed Treatment Wetlands*, Publication 8117, undated

Statewide Integrated Pest Management Program

- *Pest Notes*, Publication 7451, October 2009

6.0 LIST OF PERSONS AND ORGANIZATIONS CONTACTED

County of San Diego
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7.0 SIGNATURES

The measures identified herein are considered part of the proposed project design and will be carried out as part of project implementation. I understand the breeding of mosquitoes is unlawful under the State of California Health and Safety Code Section 2060-2067. I will permit the County of San Diego, Vector Surveillance and Control program to place adult mosquito monitors and to enforce this document as needed.

Property Owners

Bob Turner
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Mike Shaw
APN 375-100-24

John DeFederico
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Endnotes

[1] Merkel & Associates, Inc., *East County Sand Project Major Use Permit 08-123 Biological Impact Analysis Report*, September, 2011.

[2] County of San Diego, Department of Planning and Land Use, *Guidelines for Determining Significance: Vectors*, July 30, 2007, modified January 15, 2009.
Downloaded from website http://www.sdcounty.ca.gov/dplu/docs/Vector_Guidelines.pdf on August 1, 2011.

[3] County of San Diego, Department of Environmental Health, *Mosquito Fish Information Sheet*, undated. Downloaded from website http://www.sdcounty.ca.gov/deh/pests/wnv/prevention/chd_wnv_mosquito_fish.html on August 10, 2011.

[4] Ibid.

[5] Merkel & Associates, Inc., E*ast County Sand Mine Conceptual Wetland Mitigation Plan*, September 2011.

[6] Ibid.